

**PATENT APPLICATION****IN THE UNITED STATES PATENT AND TRADEMARK OFFICE**

In re application of

Docket No: Q80433

Makoto MOMOTA, et al.

Appln. No.: 10/802,808

Group Art Unit: 1752

Confirmation No.: 5096

Examiner: Barbara Lee GILLIAM

Filed: March 18, 2004

For: **POSITIVE RESIST COMPOSITION AND PATTERN FORMATION METHOD USING  
THE SAME****DECLARATION UNDER 37 C.F.R. § 1.132**

Mail Stop Amendment  
Commissioner for Patents  
P.O. Box 1450  
Alexandria, VA 22313-1450

Sir:

I, Shinichi KANNA, hereby declare and state:

I am a citizen of Japan.

I graduated from The University of Tokyo and received a Master's Degree in the course of  
Chemistry and Biotechnology in March, 1998.

I accepted employment with Fuji Photo Film Co., Ltd. in April 1998, and since that time I  
have been engaged in research and development of photoresist photosensitive materials for  
semiconductors at Fuji's Yoshida-Minami Factory Research Division.

I have conducted the following comparative experiment in support of the patentability of  
the positive resist composition of the captioned application over Uetani et al (U.S. 2001/0044070  
A1) and Kodama et al (U.S. 2003/0017415 A1).

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Specifically, I prepared and evaluated two resist compositions, designated Comparative Example a' and Example a, as reported in Table A below.

Comparative Example a' corresponds to a reproduction of Example 1 of Uetani et al. Example 1 of Uetani et al is believed to be the closest prior art example of record, to the resist composition of the present invention. Example a is the same as Comparative Example a', except that the photoacid generator (PAG) used in Example 1 of Uetani was replaced with the mixed photoacid generator I-21/III-2 (0.08/0.12)(parts) of Example IV-27 of Kodama et al.

The resists were evaluated in the same manner described at pages 129-130 of the present specification. The results are shown in Table A below. The symbols in Table A have the same meanings as described at pages 129-130 of the present specification.

Table A

|   | Crack | DE Resistance |
|---|-------|---------------|
| Comparative Example a' (Example 1 of Uetani)  | ×     | ×             |
| Example a (only the PAG of Example 1 of Uetani was replaced with PAG I-21/III-2 of Example IV-27 of Kodama et al) | ○     | ○             |

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As is evident from a comparison of these data, it is seen that, by using at least two species of the acid generator, a resin, and a mixed solvent, according to the present invention, excellent effects in terms of resistance to cracking and resistance to dry etching can be achieved. The resist of the present invention has superior resistance to cracking when a thermal flow process is employed to shrink the pattern. In addition, the resist of the invention has superior resistance to dry etching (DE). In my opinion, the superior results obtained with the positive resist composition of the present invention would have been unexpected to a person of ordinary skill in the art, in view of Uetani et al and Kodama et al.

I declare further that all statements made herein of my own knowledge are true and that all statements made on information and belief are believed to be true; and further that these statements were made with the knowledge that willful false statements and the like so made are punishable by fine or imprisonment, or both, under Section 1001 of Title 18 of the United States Code, and that such willful false statements may jeopardize the validity of the application or any patent issuing thereon.

Date: Oct. 6, 2006

Shinichi Kanna  
Shinichi KANNA

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